

2014

Immunizations in Iowa

Iowa Immunization Program Annual Report

Iowa Department of Public Health
Division of Acute Disease Prevention Emergency Response/Environmental Health
Bureau of Immunization and Tuberculosis



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Introduction

The mission of the Iowa Immunization Program is to decrease vaccine-preventable diseases through education, advocacy and partnership. Vaccines have been hailed as one of the greatest public health achievements of the 20th century and one of the most economical health interventions known.

Infectious diseases once common in the United States are now rare because of the widespread use of vaccines. For every \$1 spent on each of the eleven vaccines given routinely to children, our country saves \$10.10 in medical costs by averting costs to treat diseases. A study from the Centers for Disease Control and Prevention reports vaccines administered to children and infants over the past two decades will prevent 322 million illnesses, 21 million hospitalizations and 732,000 deaths over the course their lifetimes.

Achieving and maintaining high vaccination rates are important safeguards to prevent the spread of vaccine-preventable diseases. Immunization rates in Iowa are consistent with or exceed national averages. Health care providers are an essential stakeholder in achieving high vaccination rates. Studies consistently indicate a health care provider recommendation is the single strongest predictor of vaccination status. However, viruses and bacteria causing vaccine-preventable diseases still exist and can spread to people who are not protected by vaccines. Communities with pockets of unvaccinated and under-vaccinated populations are at increased risk for outbreaks of vaccine-preventable diseases. Recent measles outbreaks in the United States highlight the importance of maintaining high immunization rates. The Iowa Immunization Program provides immunization services throughout the state and includes the following programs: Adolescent Immunization, Adult Immunization, Immunization Registry Information System (IRIS), Vaccines for Children (VFC), Perinatal Hepatitis B, and Immunization Assessment.

The purpose of this report is to provide a summary of the activities and achievements of the Iowa Immunization Program and Iowa health care providers during 2014. It also serves as an annual informational resource for stakeholders, local partners, policy makers and the general public. Iowa-specific immunization coverage rates, funding sources, and program-specific data appear in tables and maps throughout the report. These tables and maps demonstrate not only immunization coverage levels, but also collaboration and work being done at the local level by public and private health care providers. This report also highlights special projects and initiatives to increase Iowans' access to vaccines.

IMMUNIZATION PROGRAM FUNDING

In calendar year 2014, the Immunization Program received funds from the federal Vaccines for Children Program (VFC), federal 317 grant program, state funds, and Federal Prevention and Public Health Funds totaling \$32,167,217 (Table 1).

<i>Funding Source</i>	<i>Calendar Year 2014</i>
<i>Federal VFC</i>	\$26,512,447
<i>Federal 317</i>	\$3,323,293
<i>State</i>	\$590,178
<i>Federal PPHF</i>	\$1,741,299
<i>Total</i>	\$32,167,217

Table 1: Calendar year 2014 total program funds

Program expenditures are divided into three main categories: **vaccine purchases**, **contracts** with local public health agencies and immunization service providers, and **program infrastructure** (staff salary and operating expenses). The funding distribution for these three categories is illustrated in Figure 1.

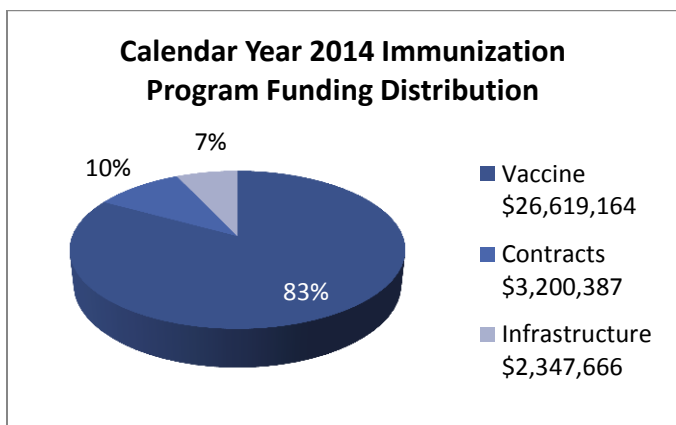


Figure 1: Calendar Year 2014 Immunization Program Funding Distribution

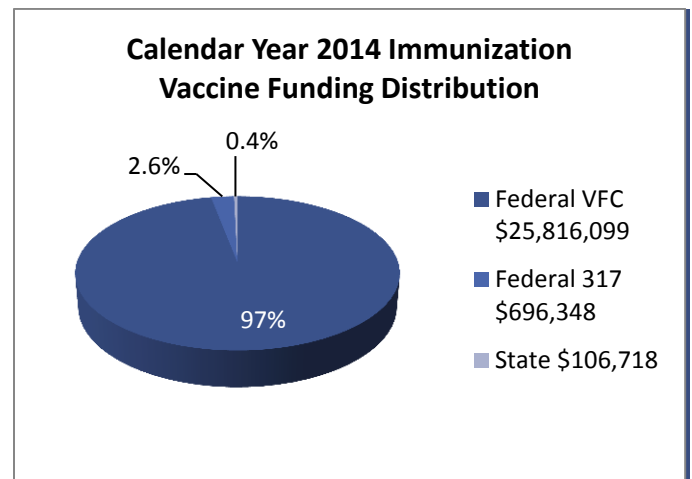


Figure 2: Calendar Year 2014 Immunization Program Vaccine Funding Distribution

Vaccine Funds

The Immunization Program completes annual population estimates and vaccine forecasting for Iowa's population, which is used by CDC to determine vaccine funding for the upcoming year. The Immunization Program received funding for vaccines from the federal VFC Program, federal 317 grant vaccine funds, and state funds. Figure 2 includes the vaccine funding distribution for calendar year 2014. Of the program's \$32 million dollar 2014 budget, more than \$26 million was spent on vaccines.

In 2014, Iowa received \$25,816,099 from the federal VFC Program for vaccine. These funds account for 97 percent of the program's total vaccine budget. These funds are used to immunize children birth through 18 years of age who meet the following eligibility: Medicaid enrolled, uninsured, underinsured, American Indian or Alaskan Native.

The Immunization Program receives federal 317 vaccine funds through an annual grant process. In calendar year 2014, Iowa received \$696,348 in 317 grant funds which comprises three percent of the program's total vaccine budget. In 2014, Iowa used federal 317 grant funds to vaccinate underinsured children served by select public health agencies.

In 2014, \$106,718 of state funds were used to purchase vaccine which comprised less than one percent of the program's total vaccine budget. State funds are used to pay for vaccines for children who do not meet VFC eligibility requirements.

SPECIAL PROJECTS

Local Public Health Billing Project

In 2013, the Immunization Program received a grant award from the Prevention and Public Health Fund (PPHF) to assist local public health agencies (LPHAs) to implement billing programs. Billing activities for this grant continued through August 2014. Iowa participated in three phases of the CDC Billing Grant Program, all contributing to the billing readiness of Iowa LPHAs.

The award assisted LPHAs to overcome barriers identified with initiating a billing program. Throughout this grant, the Iowa Department of Public Health worked with Medical Billing Services (MBS), a local medical billing and management company. MBS served as the contractor responsible for development and delivery of the systems, tools and programs created under these grant programs. MBS conducted the following activities: provided one-on-one consultation to 45 of Iowa's LPHAs to establish successful billing programs; trained LPHA staff on contracting, billing, credentialing, coding and other components of billing; and continued the LPHA Billing Hotline.

There are many accomplishments achieved during this grant period. Sixty-eight LPHAs attended the HIPAA and Billing Compliance training in 2014. Between July 1, 2013 and August 31, 2014, these agencies generated \$1,444,563 in revenue from billing immunization services. This includes \$444,881 (31 percent) from private/commercial payers and \$999,682 (69 percent) from public/governmental sources.

Adult Vaccination Project

In 2014, the Immunization Program completed activities on the PPHF grant to improve adult immunizations in Iowa. These grant funds allowed the Iowa Immunization Program to establish collaboration between employers, pharmacies, and local public health agencies to improve adult immunization rates.

Outcome of grant activities include:

- The number of pharmacies enrolled in IRIS during the grant period increased significantly. During the grant period, 140 pharmacies enrolled in IRIS bringing the total to 294 pharmacies currently using the application. Prior to August 31, 2012, 7,255 doses of 18 different vaccine types had been entered by pharmacies in IRIS. During the course of the grant period, pharmacies entered 128,388 doses of 24 vaccine types. This increase helps give all health care providers a more complete picture of the vaccination status in Iowans.
- During this grant process, Safeguard Iowa highlighted the importance of partnerships between government agencies, private businesses and nonprofit organizations to help combat the spread of

diseases through vaccination of the adult population. The implementation of the employer vaccination resource toolkit has been successful in establishing relationships and employee vaccination clinics across the state to aid in increased adult vaccination and reduced absenteeism due to sick employees.

- The Iowa Immunization Coalition (IIC) collaborated with LPHAs to utilize the Coalition's media campaign and tools and to provide education to the public and health care providers regarding adult immunizations. IIC ran two different media campaigns, targeting a variety of audiences including patients, physicians and other medical providers, pharmacies, and other organizations working on immunization research and practice.
- Funds were utilized by Iowa Healthcare Collaborative (IHC) to evaluate health care worker immunization rates by expanding current strategies used with hospital settings to increase health care worker influenza vaccination rates. IHC intends to continue to provide developed resources and further support the capacity of long term care facilities (LTC) to report and manage immunization data through continued enabling of the online reporting tool beyond the project period. IHC continued to enroll facilities in the online reporting system to report 2013-2014 flu season data through December 2014. The online reporting tool will continue to be available to LTC for the upcoming influenza season and beyond.

Increase Human Papillomavirus (HPV) Vaccination Rates among Adolescents Project

In 2014, Iowa received a grant award from the Prevention and Public Health Fund (PPHF) to assist in increasing HPV vaccination rates among adolescents through September 2015. In Iowa, only 19 percent of adolescents aged 11-18 have received the three doses of HPV vaccine recommended for full protection. In comparison, 66 percent of 11-18 year-olds in Iowa have received the Tdap vaccine, which protects against tetanus, diphtheria and pertussis. The Iowa Immunization Program is working on the following initiatives to increase HPV vaccination rates of adolescents living in Iowa.

- Partner with the Iowa Chapter of the American Academy of Pediatrics (IA AAP), Iowa Academy of Family Physicians (IAFP), and the Iowa Department of Public Health (IDPH) to increase HPV vaccination rates in Iowa through health care provider education. Providers play an important role in improving the uptake of this life-saving vaccine.
- Develop a statewide HPV vaccine initiative with stakeholders including immunization providers as well as cancer prevention and control programs.
- Implement a comprehensive communication campaign targeted to the public, with emphasis on reaching parents/guardians of children aged 11-18 years.
- Implement communication campaign targeting health care providers to promote HPV vaccination consistent with other recommended adolescent vaccines.
- Implement IRIS-based reminder/recall for adolescents aged 11-18 years in collaboration with LPHA.
- Utilize existing IRIS tools (benchmark, assessment coverage reports) to evaluate current HPV vaccine coverage levels by county/provider and conduct reminder/recall activities to increase HPV vaccine coverage rates.
- Use assessment and feedback (AFIX) site visits to evaluate the performance of providers in administering the 3-dose HPV vaccine series consistent with current ACIP recommendations and present this information to providers to guide changes, if needed, in their clinical practice patterns.
- Track HPV vaccine coverage by county for each of the three doses in the vaccine series.

IMMUNIZATION EDUCATION

2014 Vaccine University

Nearly 850 health professionals attended the 2014 Vaccine University trainings. These one-day trainings, held in 14 locations across Iowa, focused on the latest information regarding vaccine administration, immunization schedules, vaccine storage and handling, HPV vaccine initiative and VFC Program requirements. These events provided attendees an opportunity to learn the most current information regarding immunizations and vaccine-preventable diseases.

Immunization Update Newsletter

The Immunization Update is a quarterly newsletter produced and distributed by the Iowa Immunization Program. This newsletter features important immunization information, vaccine recommendations, and changes regarding the Vaccines for Children Program, IRIS, and storage and handling guidelines. Also included are practical vaccination resources, a question and answer corner and training announcements. Current and past issues of the newsletter can be found on the Immunization web site at

<http://www.idph.state.ia.us/ImmTB/Immunization.aspx?prog=Imm&pg=Newsletters>

To receive Immunization Program updates directly, recipients can send a blank e-mail to: join-IMMUNIZATION@lists.ia.gov.

Brochures and Print Materials

The Immunization Program offers educational materials for parents and health care providers. Materials include brochures, school/child care audit forms, reminder/recall postcards, temperature logs, posters and VFC Program forms. Educational materials can be printed or ordered free of charge from the Health Protection Clearinghouse. In 2014, the Immunization Program shipped 148,246 pieces of educational materials which is an average of 2,851 items per week. Immunization educational materials may be ordered by one of the following options:

- Call 888-398-9696
- Online – Immunization Program webpage
www.idph.state.ia.us/ImmTB/Immunization.aspx
- Fax the order form to 866-499-8846

Immunization Consultation

The Iowa Immunization Program staff is available Monday - Friday 8:00 a.m. - 4:30 p.m. for consultation regarding program activities and immunization related questions. Please refer to Appendix A, Immunization Staff Directory, for contact information.

IMMUNIZATION REGISTRY INFORMATION SYSTEM



Iowa's Immunization Registry Information System (IRIS) is a confidential, computerized repository of individual immunization records from

participating public and private health care providers. IRIS includes patient records from all ages and is used to keep patients on schedule for their recommended immunizations by storing immunization records, documenting vaccine contraindications and reactions, validating immunization history, providing vaccine recommendations, producing patient reminder and recall notices, and managing vaccine inventory.

IRIS Trainings

IRIS staff provided 14 training opportunities throughout the year. Training opportunities included webinars on the following topics: monthly question and answer sessions, security and password requirements and IRIS password reset. More than 500 IRIS users participated in these trainings.

IRIS Users and Organizations

Enrollment in IRIS is available to all health care providers in Iowa that administer immunizations. In 2014, 289 new organizations enrolled in IRIS for a total of 2,333 participating health care provider sites. Sites include private health care clinics, local public health agencies, rural health clinics, hospitals, pharmacies, and long-term care centers. In 2014, 113 pharmacies enrolled in IRIS, comprising the largest organization type to enroll during the year.

IRIS - Interoperability Funding

In 2012, Iowa received funds from the Prevention and Public Health Fund (PPHF) to enhance interoperability between electronic health records (EHRs) and IRIS. Funds were used to contract with Hewlett Packard Enterprise Services (HPES) to make programming enhancements in IRIS, including HL7 2.5.1 file format and web services transport. Throughout 2014, the Immunization Program worked with 186 additional health care providers to send electronic files to IRIS. As of December 31, 2014, 410 organizations were exchanging electronic immunization data with IRIS.

Iowa received additional Interoperability Funding in 2014. Funds will be used to improve the efficiency, effectiveness, and quality of immunization data contained in the registry. The program will work to strengthen the immunization information technology infrastructure, and enhance the program's capacity to support and extend interoperability between the Immunization Registry Information Systems (IRIS) and Electronic Health Record (EHR) systems.

IRIS Quick Stats – 2014

- o Total number of immunizations in IRIS:
29,544,173
- o Total number of clients/patients in IRIS:
3,395,756
- o Number of organizations enrolled in IRIS:
2,333
- o Total number of active and distinct users:
9,521

IRIS – VTrckS

The Centers for Disease Control and Prevention (CDC) implemented a new vaccine ordering and management system for all immunization projects. Iowa received funds from the PPHF in 2012 to develop a vaccine ordering module in IRIS that interfaces with CDC's Vaccine Tracking System (VTrckS).

The Immunization Program used these funds to contract with HPES to make enhancements to IRIS that allow health care providers to receive vaccine orders electronically into their IRIS inventory.

Iowa transitioned to VTrckS April 1, 2013. Throughout 2014, IRIS staff continued to educate health care providers regarding the new functionality.

Additional PPHF funds were received in 2014. The purpose of these funds is to support the VTrckS interface by through registry provider master data, ordering and inventory components. IDPH will build on existing infrastructure to enhance the vaccine ordering and distribution system. This project will allow providers to use a single tool to track inventory and order VFC vaccine.

The number of patients in IRIS has steadily increased (Table 2). More than 452,000 patient records were added in 2014, and IRIS contains more than 29.5 million immunizations. IRIS includes records consisting of two or more immunizations for 95 percent of Iowa's children 4 months to 6 years of age.

Number of Iowans in IRIS by Year			
Year	Iowa Patient Records in IRIS	Population of Iowa*	Percent of Iowa population in IRIS
2012	2,136,380	3,018,988	71
2013	2,328,983	3,022,322	77
2014	2,524,059	3,024,770	83

*Population CDC Wonder - <http://wonder.cdc.gov/population-projections.html>

Table 2: Number of patient records in IRIS with an Iowa zip code compared to Iowa's population

VACCINES FOR CHILDREN PROGRAM



The Vaccines for Children (VFC) program is a federally funded program providing vaccines at no cost to eligible children from birth through 18 years of age. Eligible children include those who are enrolled in Medicaid, uninsured, underinsured, American Indian or Alaskan Native. The VFC Program provides vaccine for approximately 44 percent, or 339,488 of Iowa's children from birth through 18 years of age. In 2014, the Iowa VFC Program distributed 590,961 doses of vaccine (Table 3), valued at more than \$25 million, to VFC-enrolled health care providers.

As of December 31, 2014, Iowa's VFC Program had 591 participating providers enrolled throughout the state. Enrolled providers include local public health agencies, Indian Health Services, Women Infants and Children (WIC) clinics, private health care providers, hospitals, pharmacies, rural health clinics, Federally Qualified Health Centers, and family planning clinics. Figure 3 includes the number of VFC providers by county and the number of children in the county, less than 18 years of age.

Vaccines	Doses Distributed
DT	46
DTaP	19,060
DTaP-IPV (Kinrix)	14,520
DTaP-IPV/Hib (Pentacel)	14,390
DTaP-IPV-Hep B (Pediarix)	44,270
Tdap	16,380
Td	550
Hep A	50,210
Hep B	23,220
Hep A-Hep B (Twinrix)	870
Hep B/Hib (Comvax)	10
Hib	51,120
HPV	30,230
IPV	8,140
MMR	22,090
MMR-Varicella (MMRV)	16,570
MCV	18,455
PCV 13	72,490
Rotavirus	45,050
Varicella	25,450
Influenza	117,840
Total Doses Distributed	590,961

Table 3: 2014 VFC vaccine doses distributed

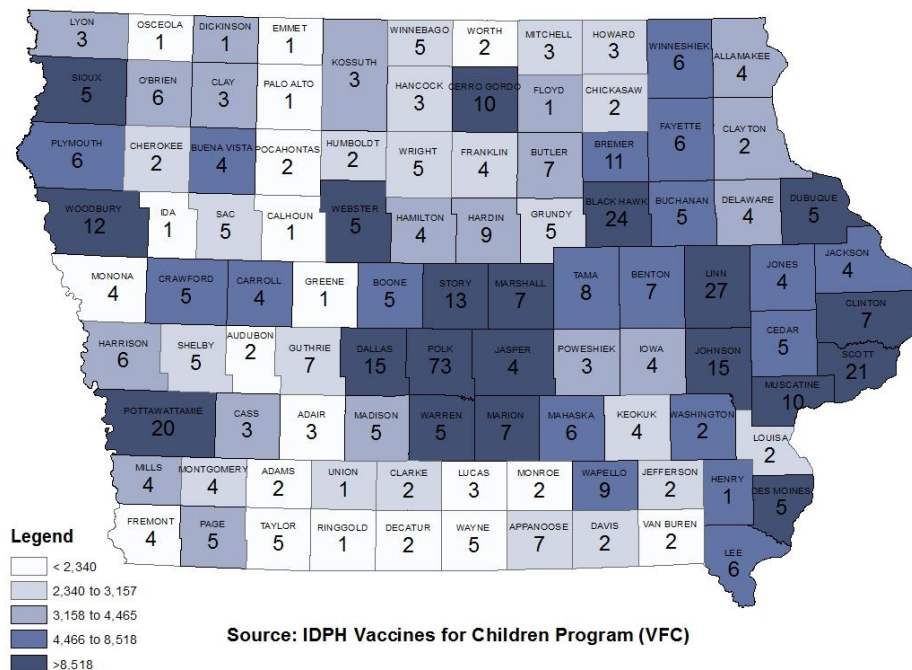


Figure 3: Number of VFC Providers in Iowa by County and Population Less than 18 Years of Age

HEPATITIS B PROGRAM

Perinatal Hepatitis B Program

Iowa's Perinatal Hepatitis B Program works to prevent transmission of hepatitis B infection from mothers to infants by conducting parent and health care provider education, case management of mothers and babies, distribution of hepatitis B vaccine and hepatitis B immune globulin (HBIG), and laboratory testing. Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which can be transmitted from an infected mother to her infant at birth. In 2013, there were 91 infants born to hepatitis B positive mothers, which is a twenty-one percent increase from the previous year (Figure 4).

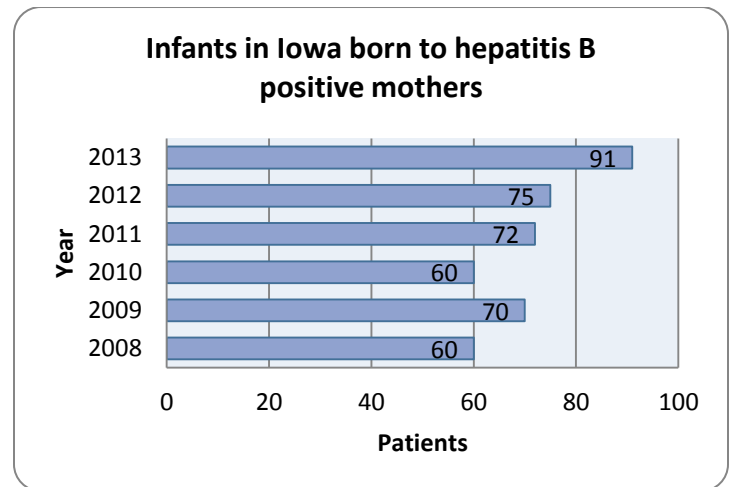


Figure 4: Iowa infants born to hepatitis B positive mothers

Universal Hepatitis B Vaccine Birth Dose Program

The Immunization Program provides hepatitis B vaccine to hospitals to universally administer the birth dose of hepatitis B vaccine to all newborns regardless of insurance coverage. In 2014, 26 of 79 birthing hospitals in Iowa were enrolled in the Universal Hepatitis B Vaccine Birth Dose Program. The 2013 National Immunization Survey (NIS) for hepatitis B vaccine among infants birth to 3 days of age indicates Iowa has a hepatitis B birth dose rate of 79.5 percent. Iowa ranks 16 out of the 53 assessed immunization projects. This is an increase in ranking from 48 of 63 immunization projects assessed in 2012. The hepatitis B birth dose rate in Iowa increased by 11 percentage points from 2012 and 27 percentage points since 2010. The program continues initiatives to increase the number of Iowa infants who receive a birth dose of vaccine. These efforts include the Universal Hepatitis B Vaccine Birth Dose Program, promoting birthing hospitals' enrollment in the VFC Program, and encouraging birthing hospitals to enroll in the Immunization Action Coalition's (IAC) Hepatitis B Birth Dose Honor Roll. Five Iowa birthing hospitals have been named to IAC's Hepatitis B Birth Dose Honor Roll; two hospitals received this recognition for two consecutive years.

Perinatal Hepatitis B Prevention Champions in Iowa

In 2013, the Immunization Action Coalition's (IAC) created the Hepatitis B Birth Dose Honor Roll. The Honor Roll was created to recognize hospitals and birth centers who achieved 90 percent or greater coverage rate of administering hepatitis B vaccine to newborns prior to discharge. To protect newborns from hepatitis B viral infection, birthing hospitals who qualify must also implement written policies, procedures, and protocols including:

- A standing order to administer the hepatitis B vaccine to all infants is included as a part of routine newborn admission orders.
- All newborns routinely receive hepatitis B vaccine after birth, prior to discharge.
- Mother's HBsAg screening test result is reviewed, and original result is included in her chart as well as the infant's chart.
- If an incorrect test was ordered or is missing, an HBsAg blood test is ordered as soon as possible on the mother.
- Infants born to HBsAg-positive mothers receive hepatitis B immune globulin (HBIG) and hepatitis B vaccine within 12 hours of birth.
- Notification to the state or county health department's perinatal hepatitis B prevention program prior to discharge for all mothers whose HBsAg test result is positive.
- Infants born to mothers whose HBsAg status is unknown receive hepatitis b vaccine within 12 hours of birth.
- Infants who weigh less than 2000 grams who are born to mothers whose HBsAg status is unknown receive HBIG within 12 hours of birth.

Congratulation to the following Iowa hospitals for their inclusion into IAC's Hepatitis B Birth Dose Honor Roll:

- Myrtue Medical Center, Harlan, IA
 - Reported a coverage rate of 94% from 7/1/2012 to 6/30/2013
 - Reported a coverage rate of 96% from 7/1/2013 to 6/30/2014
- Greene County Medical Center, Jefferson, IA
 - Reported a coverage rate of 100% from 11/1/2012 to 10/31/2013
- Mary Greeley Medical Center, Ames, IA
 - Reported a coverage rate of 93% from 1/1/2013 to 12/31/2013
 - Reported a coverage rate of 94% from 1/1/2014 to 12/31/2014
- Mercy Medical Center, Mason City, IA
 - Reported a coverage rate of 93% from 6/1/2013 to 6/1/2014
- St. Anthony Regional Hospital, Carroll, IA
 - Reported a coverage rate of 97% from 1/1/2012 to 12/31/2013

High-Risk Adult Hepatitis B Program

The Immunization Program in collaboration with the Hepatitis Program provides hepatitis A and hepatitis B vaccine for high-risk patients seen at local public health agencies' sexually transmitted disease (STD) clinics. High-risk patients include injection drug users, men who have sex with men, persons with a current STD diagnosis, human immunodeficiency virus (HIV) or hepatitis C infected persons, and sexual partners of persons infected with HIV, hepatitis A, or hepatitis B. In 2014, the Immunization Program distributed 870 doses of adult hepatitis A/hepatitis B vaccine (Twinrix) to local public health agencies.

IMMUNIZATION ASSESSMENTS

Immunization assessments serve as a means to evaluate immunization practices and progress towards achieving established goals. Immunization records are assessed to determine the percentage of patients who are age-appropriately vaccinated consistent with the recommended immunization schedule. Immunization assessment data are used to improve health care providers' standard immunization practices and immunization delivery systems and to guide strategies and policies, which directly impact the overall immunization rates of their patients.

School and Child Care Audits

Assessments of children attending elementary or secondary school or licensed child care centers are conducted annually to ensure attendees have received the required immunizations and have an appropriate Iowa Department of Public Health Certificate of Immunization, Certificate of Immunization Exemption, or Provisional Certificate of Immunization. Local public health agencies perform annual audits of immunization records for students enrolled in public, private, and parochial K-12 schools and children in licensed child care centers. Audits for the 2013-2014 school year indicate 99.02 percent of children enrolled in kindergarten through 12th grade were compliant with the law and had an appropriate immunization certificate (Table 4), while 95.93 percent of children audited in child care centers were compliant with the law (Table 5).

County and State Immunization Rates

The Immunization Program uses data from the Immunization Registry Information System (IRIS) to calculate county and state immunization rates for 2-year-old children and adolescents 13-15 years of age. These data provide immunization rates based upon a standard vaccination series identified by the Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC).

The report includes patients served by both public and private health care providers with a record in IRIS that have a zip code and are an 'active' patient within a health care provider organization. A patient's status becomes 'active' in an organization when an immunization is administered or when the health care provider selects this status on a patient record.

The report for each age group includes the estimated number of children in the county, the number of records meeting the assessment criteria and the corresponding percentage of records in IRIS. These data are used to calculate the percentage of records in IRIS for each county. The population percentage by county ranges from 23-136 percent with a state average of 94 percent for 2-year-old children and range from 44-132 percent with a state average of 96 percent for adolescents, 13-15 years of age. Rates greater than 100 percent can be attributed to the difference between the actual numbers of children in the county compared to the county population estimates.

2-Year-Old Immunization Rates

The 2-year-old county immunization rate for the 4-3-1-3-3-1-4 series (4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age) ranges from 39 to 84 percent, with a state immunization rate of 69 percent. The state immunization rate includes the assessment of 36,255 patient records, which is approximately 94 percent of Iowa's 2-year-old population (Table 6).

Adolescent 13-15-Year-Old Immunization Rates

The adolescent, 13-15-year-old, county immunization rate for the 3-1-2-1-2 (3 Hep B, 1 Meningococcal, 2 MMR, 1 Td or Tdap, 2 Varicella) series ranges from 10 to 74 percent, with an average state immunization rate of 45 percent. The state immunization rate includes the assessment of 117,375 patient records, which is approximately 96 percent of Iowa's 13-15-year-old population. The county immunization rate for HPV vaccine received by adolescent girls, ages 13-15, ranges from seven to 45 percent, with an average state immunization rate of 27 percent. The county immunization rate for HPV vaccine received by adolescent males, ages 13-15, range from two to 39 percent, with an average state immunization rate of 15 percent (Table 7).

CONCLUSION

The Immunization Program's vision is healthy Iowans living in communities free of vaccine-preventable diseases. Iowa health care providers are on the forefront of this vision by promoting vaccines and providing sound science-based immunization education to their patients. Studies demonstrate the most significant factor in a parent's decisions to vaccinate their children is a health care provider's recommendation. When a provider offers a strong and clear recommendation, patients are four to five times more likely to be vaccinated.

As included in this report, many barriers have been overcome that once limited the widespread availability and use of vaccines. Vaccines are essential tools in preventing devastating, widespread disease; diseases now rare due to the achievement of high immunization rates. The absence of these diseases no longer serves as a reminder of their severity and potential life-threatening complications.

We cannot rest on our past achievements and successes but must remain diligent in promoting and protecting the health of Iowans against vaccine-preventable diseases. The Iowa Immunization Program is committed to promoting immunizations through the implementation of strategies to achieve and maintain high vaccination levels. If we forget the history of these diseases, we may be doomed to repeat it. Vaccines prevent diseases and save lives. Immunize for a better life.

Tables and Maps

Table 4: Iowa Department of Public Health - Immunization Program
Immunization Audit 2013-2014 School Year
K-12 Summary Report by County

County	Valid Certificate	Provisional	Medical Exemptions	Religious Exemptions	Invalid	Total with Certificates	Total Enrollment	Percent with Certificates
Adair	767	33	3	4	7	807	814	99.14
Adams	452	3	2	5	8	462	470	98.30
Allamakee	2091	13	7	19	250	2130	2380	89.50
Appanoose	1800	85	6	8	14	1899	1913	99.27
Audubon	671	9	2	5	0	687	687	100.00
Benton	3934	45	13	77	3	4069	4072	99.93
Black Hawk	18674	429	70	119	136	19292	19428	99.30
Boone	3810	62	14	27	0	3913	3913	100.00
Bremer	4498	11	9	39	29	4557	4586	99.37
Buchanan	3090	35	15	334	17	3474	3491	99.51
Buena Vista	3816	203	61	18	21	4098	4119	99.49
Butler	2186	40	2	12	7	2240	2247	99.69
Calhoun	1143	8	2	4	1	1157	1158	99.91
Carroll	3678	9	28	34	0	3749	3749	100.00
Cass	2393	10	14	27	27	2444	2471	98.91
Cedar	3206	46	7	38	9	3297	3306	99.73
Cerro Gordo	6175	192	14	52	53	6433	6486	99.18
Cherokee	1613	52	15	15	0	1695	1695	100.00
Chickasaw	1950	28	4	37	0	2019	2019	100.00
Clarke	1578	82	2	13	16	1675	1691	99.05
Clay	2389	51	13	20	10	2473	2483	99.60
Clayton	2545	54	15	46	1	2660	2661	99.96
Clinton	7582	169	25	97	11	7873	7884	99.86
Crawford	3230	61	9	7	115	3307	3422	96.64
Dallas	14986	121	125	92	0	15324	15324	100.00
Davis	1288	5	1	17	0	1311	1311	100.00
Decatur	1076	27	9	59	53	1171	1224	95.67
Delaware	2771	7	9	9	0	2796	2796	100.00
Des Moines	6657	183	4	46	87	6890	6977	98.75
Dickinson	2365	20	36	31	2	2452	2454	99.92

County	Valid Certificate	Provisional	Medical Exemptions	Religious Exemptions	Invalid	Total with Certificates	Total Enrollment	Percent with Certificates
Dubuque	16120	150	59	212	90	16541	16631	99.46
Emmet	1457	28	10	12	0	1507	1507	100.00
Fayette	2608	102	15	22	0	2747	2747	100.00
Floyd	2149	31	4	73	63	2257	2320	97.28
Franklin	1685	49	4	10	7	1748	1755	99.60
Fremont	1098	52	5	3	13	1158	1171	98.89
Greene	1375	32	3	14	2	1424	1426	99.86
Grundy	2064	74	1	8	15	2147	2162	99.31
Guthrie	1972	21	8	14	15	2015	2030	99.26
Hamilton	2529	22	5	31	1	2587	2588	99.96
Hancock	1647	17	1	9	12	1674	1686	99.29
Hardin	2698	77	6	11	47	2792	2839	98.34
Harrison	2307	95	8	19	1	2429	2430	99.96
Henry	3198	73	11	17	31	3299	3330	99.07
Howard	1789	28	11	34	16	1862	1878	99.15
Humboldt	1510	40	2	12	35	1564	1599	97.81
Ida	1012	15	4	10	3	1041	1044	99.71
Iowa	2879	77	7	20	6	2983	2989	99.80
Jackson	2652	25	1	63	209	2741	2950	92.92
Jasper	5497	87	31	36	9	5651	5660	99.84
Jefferson	1601	135	4	169	0	1909	1909	100.00
Johnson	16452	822	72	313	184	17659	17843	98.97
Jones	2933	27	6	16	6	2982	2988	99.80
Keokuk	1679	38	4	4	1	1725	1726	99.94
Kossuth	2248	50	12	24	1	2334	2335	99.96
Lee	5297	89	23	25	0	5434	5434	100.00
Linn	36225	613	293	557	966	37688	38654	97.50
Louisa	2258	51	0	6	4	2315	2319	99.83
Lucas	1308	5	3	50	26	1366	1392	98.13
Lyon	1892	40	6	28	15	1966	1981	99.24
Madison	3124	70	11	42	0	3247	3247	100.00
Mahaska	3045	93	1	24	21	3163	3184	99.34
Marion	5791	62	39	59	149	5951	6100	97.56
Marshall	6960	176	19	17	8	7172	7180	99.89
Mills	2417	14	7	32	6	2470	2476	99.76
Mitchell	2300	2	1	40	89	2343	2432	96.34
Monona	1242	18	3	8	4	1271	1275	99.69
Monroe	1130	0	8	8	14	1146	1160	98.79
Montgomery	1648	16	2	6	0	1672	1672	100.00

County	Valid Certificate	Provisional	Medical Exemptions	Religious Exemptions	Invalid	Total with Certificates	Total Enrollment	Percent with Certificates
Muscatine	7003	68	30	61	141	7162	7303	98.07
O'Brien	2502	53	14	21	10	2590	2600	99.62
Osceola	751	2	7	0	2	760	762	99.74
Page	2457	12	3	9	177	2481	2658	93.34
Palo Alto	1652	27	3	16	2	1698	1700	99.88
Plymouth	4450	111	21	27	15	4609	4624	99.68
Pocahontas	972	15	8	15	12	1010	1022	98.83
Polk	76533	776	417	585	449	78311	78760	99.43
Pottawattamie	15479	227	69	64	5	15839	15844	99.97
Poweshiek	2655	4	11	17	87	2687	2774	96.86
Ringgold	699	9	0	3	1	711	712	99.86
Sac	1484	68	10	21	16	1583	1599	99.00
Scott	28762	235	56	551	10	29604	29614	99.97
Shelby	1958	24	7	12	9	2001	2010	99.55
Sioux	6360	226	46	165	57	6797	6854	99.17
Story	10839	231	38	143	46	11251	11297	99.59
Tama	2954	36	10	13	7	3013	3020	99.77
Taylor	890	27	4	8	8	929	937	99.15
Union	2022	22	1	11	81	2056	2137	96.21
Van Buren	888	51	10	38	80	987	1067	92.50
Wapello	5456	47	5	18	439	5526	5965	92.64
Warren	8727	321	82	91	24	9221	9245	99.74
Washington	3697	175	21	106	108	3999	4107	97.37
Wayne	914	11	8	8	15	941	956	98.43
Webster	5555	143	7	30	51	5735	5786	99.12
Winnebago	2221	19	17	20	1	2277	2278	99.96
Winneshek	2855	8	16	58	61	2937	2998	97.97
Woodbury	18962	193	53	124	143	19332	19475	99.27
Worth	1241	28	2	6	17	1277	1294	98.69
Wright	2284	22	29	18	52	2353	2405	97.84
Total	493432	8700	2251	5628	5072	510011	515083	99.02

Table 5: Iowa Department of Public Health, Immunization Program
Immunization Audit 2013-2014 School Year
Child Care Immunization by County Summary Report

County	Valid Certificate	Provisional	Medical Exemptions	Religious Exemptions	Invalid	Total with Certificates	Total Enrollment	Percent with Certificates
Adair	150	4	4	0	0	158	158	100.00
Adams	99	0	0	0	8	99	107	92.52
Allamakee	329	3	0	2	66	334	400	83.50
Appanoose	167	15	0	2	2	184	186	98.92
Audubon	94	1	0	0	0	95	95	100.00
Benton	647	16	6	7	9	676	685	98.69
Black Hawk	368	11	1	3	6	383	389	98.46
Boone	471	16	2	3	0	492	492	100.00
Bremner	596	4	0	10	89	610	699	87.27
Buchanan	621	10	1	3	5	635	640	99.22
Buena Vista	423	32	4	0	16	459	475	96.63
Butler	426	9	0	3	9	438	447	97.99
Calhoun	272	4	1	7	0	284	284	100.00
Carroll	668	12	4	7	10	691	701	98.57
Cass	554	5	1	2	48	562	610	92.13
Cedar	373	9	0	3	12	385	397	96.98
Cerro Gordo	1492	8	0	13	170	1513	1683	89.90
Cherokee	309	19	2	1	0	331	331	100.00
Chickasaw	290	16	0	4	0	310	310	100.00
Clarke	303	8	0	1	15	312	327	95.41
Clay	453	3	0	5	0	461	461	100.00
Clayton	542	5	0	8	2	555	557	99.64
Clinton	1434	73	9	16	34	1532	1566	97.83
Crawford	466	26	3	1	65	496	561	88.41
Dallas	2639	10	16	19	68	2684	2752	97.53
Davis	222	16	0	2	2	240	242	99.17
Decatur	156	10	0	0	11	166	177	93.79
Delaware	445	4	0	1	12	450	462	97.40
Des Moines	1358	8	0	7	118	1373	1491	92.09
Dickinson	641	9	4	24	31	678	709	95.63
Dubuque	625	15	1	6	4	647	651	99.39
Emmet	255	14	1	1	3	271	274	98.91
Fayette	404	18	0	3	0	425	425	100.00

County	Valid Certificate	Provisional	Medical Exemptions	Religious Exemptions	Invalid	Total with Certificates	Total Enrollment	Percent with Certificates
Floyd	302	0	0	8	14	310	324	95.68
Franklin	365	16	0	4	2	385	387	99.48
Fremont	168	5	2	2	6	177	183	96.72
Greene	219	8	0	3	6	230	236	97.46
Grundy	403	3	0	6	32	412	444	92.79
Guthrie	205	1	0	1	7	207	214	96.73
Hamilton	400	3	0	3	2	406	408	99.51
Hancock	236	12	1	3	22	252	274	91.97
Hardin	551	54	1	2	19	608	627	96.97
Harrison	196	35	0	1	0	232	232	100.00
Henry	401	4	0	3	34	408	442	92.31
Howard	439	14	0	0	4	453	457	99.12
Humboldt	237	7	0	1	34	245	279	87.81
Ida	197	9	1	0	4	207	211	98.10
Iowa	409	11	0	1	12	421	433	97.23
Jackson	400	1	2	6	55	409	464	88.15
Jasper	885	62	2	9	12	958	970	98.76
Jefferson	297	84	0	8	7	389	396	98.23
Johnson	3361	19	6	26	304	3412	3716	91.82
Jones	459	17	0	3	8	479	487	98.36
Keokuk	222	7	0	1	1	230	231	99.57
Kossuth	565	20	0	8	12	593	605	98.02
Lee	961	19	2	2	2	984	986	99.80
Linn	698	51	1	9	35	759	794	95.59
Louisa	281	12	0	0	11	293	304	96.38
Lucas	204	0	0	5	3	209	212	98.58
Lyon	339	10	0	10	31	359	390	92.05
Madison	343	32	0	1	0	376	376	100.00
Mahaska	593	21	0	8	8	622	630	98.73
Marion	833	6	3	7	27	849	876	96.92
Marshall	825	42	2	7	11	876	887	98.76
Mills	415	2	0	2	30	419	449	93.32
Mitchell	289	0	0	1	41	290	331	87.61
Monona	203	8	0	2	4	213	217	98.16
Monroe	160	0	0	2	8	162	170	95.29
Montgomery	248	16	1	0	10	265	275	96.36
Muscatine	1067	9	1	6	32	1083	1115	97.13
O'Brien	415	29	3	4	27	451	478	94.35
Osceola	139	5	2	0	0	146	146	100.00

County	Valid Certificate	Provisional	Medical Exemptions	Religious Exemptions	Invalid	Total with Certificates	Total Enrollment	Percent with Certificates
Page	453	2	1	1	91	457	548	83.39
Palo Alto	356	6	2	3	0	367	367	100.00
Plymouth	727	34	2	4	20	767	787	97.46
Pocahontas	120	11	0	0	11	131	142	92.25
Polk	15502	300	66	48	666	15916	16582	95.98
Pottawattamie	2216	28	7	9	188	2260	2448	92.32
Poweshiek	382	2	2	5	29	391	420	93.10
Ringgold	163	3	0	1	0	167	167	100.00
Sac	302	14	3	1	0	320	320	100.00
Scott	4720	96	14	122	22	4952	4974	99.56
Shelby	315	6	0	2	6	323	329	98.18
Sioux	1204	53	1	5	13	1263	1276	98.98
Story	1621	55	8	17	26	1701	1727	98.49
Tama	377	17	2	2	1	398	399	99.75
Taylor	159	12	0	0	3	171	174	98.28
Union	366	1	0	0	33	367	400	91.75
Van Buren	91	6	1	0	0	98	98	100.00
Wapello	593	17	1	3	114	614	728	84.34
Warren	914	36	4	11	20	965	985	97.97
Washington	542	43	1	5	29	591	620	95.32
Wayne	154	1	0	0	15	155	170	91.10
Webster	955	110	0	2	15	1067	1082	98.61
Winnebago	470	17	6	1	20	494	514	96.11
Winneshiek	500	0	1	15	44	516	560	92.14
Woodbury	3836	107	5	13	181	3961	4142	95.63
Worth	123	1	0	0	0	124	124	100.00
Wright	276	3	2	0	47	281	328	85.67
Total	74659	2048	219	599	3286	77525	80811	95.93

Table 6: Iowa Department of Public Health, Immunization Program
2014 County Immunization Assessment
2 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series

County	County Population Born in 2013 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³	Late Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ⁴
Adair	68	66	97	82	92	92	91	92	92	85	80	3
Adams	47	51	109	73	88	80	88	90	80	71	67	10
Allamakee	173	205	118	60	80	73	80	79	71	65	53	11
Appanoose	159	141	89	7	93	87	93	88	87	73	63	6
Audubon	45	62	138	8	92	90	90	90	89	77	76	3
Benton	265	186	70	74	92	88	90	90	85	85	69	4
Black Hawk	1651	1,874	114	82	94	88	92	93	88	86	78	5
Boone	287	293	102	81	94	92	92	92	92	88	77	5
Bremer	257	305	119	86	95	90	93	93	87	90	82	4
Buchanan	298	262	88	78	93	84	89	92	84	82	75	6
Buena Vista	293	376	128	69	90	88	90	90	86	78	66	6
Butler	190	187	98	82	94	90	90	94	91	85	79	6
Calhoun	121	128	106	78	96	91	93	95	90	87	74	7
Carroll	273	282	103	79	94	89	93	94	88	82	76	5
Cass	151	178	118	83	92	92	92	92	90	80	81	3
Cedar	171	130	76	70	85	82	85	82	84	72	63	8
Cerro Gordo	499	494	99	81	93	92	92	91	91	82	77	7
Cherokee	145	159	110	79	96	91	93	97	90	85	76	5
Chickasaw	167	164	98	77	93	90	92	93	88	77	74	8
Clarke	125	129	103	69	87	86	88	87	85	75	61	6
Clay	187	220	118	81	92	91	93	93	90	87	80	6
Clayton	197	147	75	76	88	87	87	89	84	78	69	7
Clinton	568	598	105	68	88	85	83	89	86	77	64	10
Crawford	262	260	99	67	86	83	83	88	84	71	65	7
Dallas	1249	577	46	79	90	88	85	90	87	79	75	5
Davis	138	89	64	73	91	90	88	83	87	67	62	6
Decatur	88	84	95	64	80	81	80	81	76	68	62	4

¹ Source from <http://wonder.cdc.gov/bridged-race-population.html>.

² Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

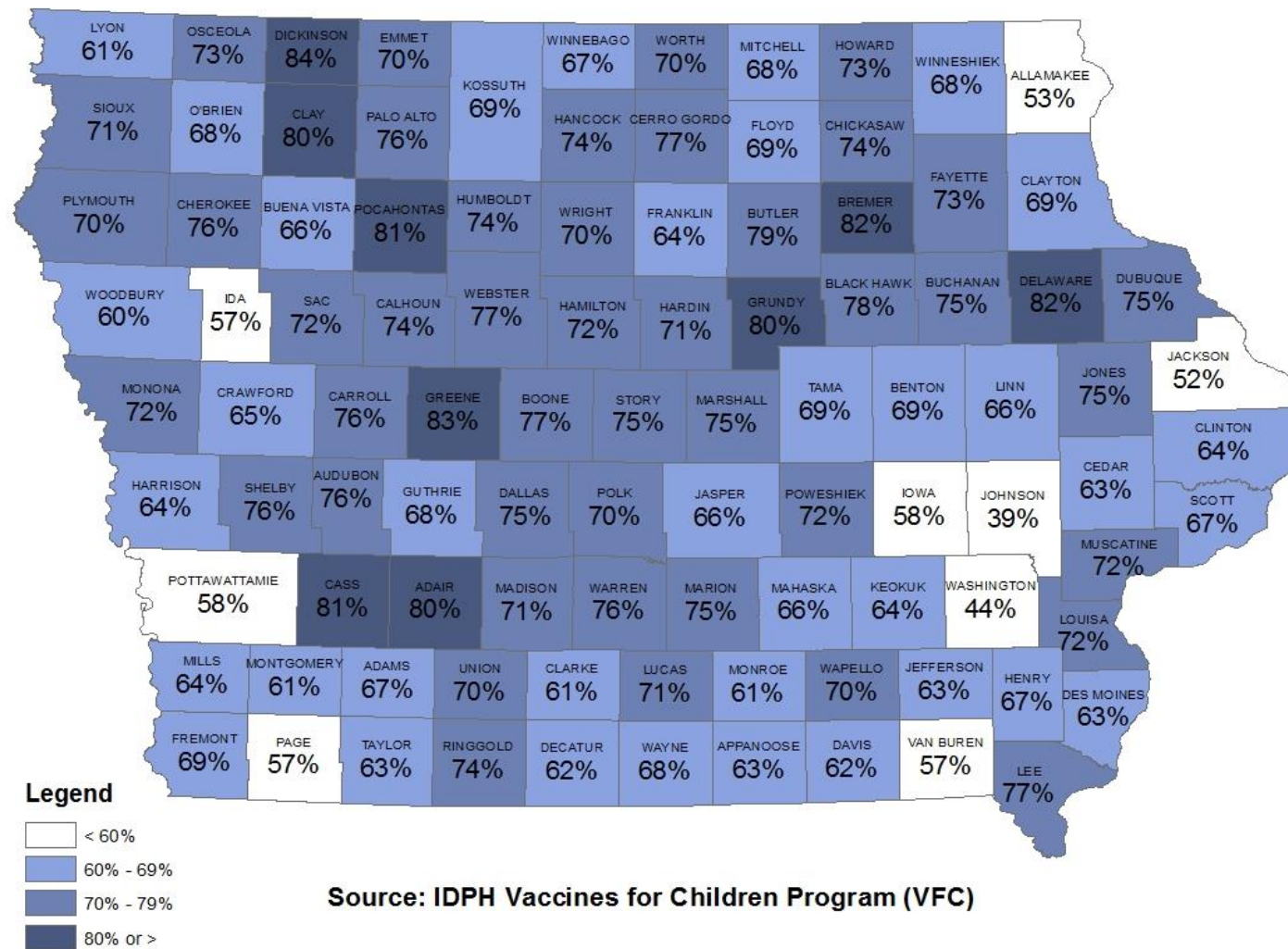
³ Up-To-Date are children who have completed the 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age.

⁴ Late Up-To-Date are children who have completed the 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV after 24 months of age.

County	County Population Born in 2013 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³	Late Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ⁴
Delaware	184	163	89	85	93	91	93	93	90	87	82	3
Des Moines	473	444	94	69	92	86	91	88	86	77	63	9
Dickinson	172	178	103	87	93	92	93	93	91	87	84	3
Dubuque	1146	264	23	77	91	86	86	89	85	80	75	4
Emmet	119	110	92	73	92	88	86	92	88	77	70	5
Fayette	246	219	89	79	94	86	94	92	84	86	73	4
Floyd	179	176	98	73	90	87	85	89	86	78	69	5
Franklin	111	108	97	70	89	83	89	89	84	73	64	9
Fremont	72	71	99	73	92	82	92	90	80	69	69	13
Greene	83	111	134	85	94	92	94	91	91	85	83	2
Grundy	145	124	86	85	93	91	91	93	90	85	80	6
Guthrie	120	113	94	71	94	87	82	94	88	77	68	9
Hamilton	170	143	84	80	90	87	92	87	84	78	72	3
Hancock	110	118	107	80	93	88	94	93	89	81	74	7
Hardin	174	201	116	77	92	91	93	90	91	83	71	8
Harrison	152	107	70	67	89	84	88	89	82	73	64	8
Henry	243	256	105	69	86	84	81	87	83	71	67	5
Howard	129	132	102	79	92	82	90	91	81	75	73	6
Humboldt	97	128	132	79	92	91	91	93	90	79	74	7
Ida	106	75	71	63	81	83	81	76	79	73	57	4
Iowa	201	130	65	62	78	78	79	77	72	67	58	4
Jackson	217	153	71	57	91	76	87	87	75	62	52	9
Jasper	431	366	85	69	88	81	85	87	84	77	66	7
Jefferson	148	115	78	66	88	83	86	89	82	68	63	5
Johnson	1759	1,228	70	42	50	70	51	50	74	44	39	2
Jones	199	154	77	83	96	92	94	94	92	84	75	4
Keokuk	123	113	92	72	85	85	85	83	82	71	64	3
Kossuth	161	142	88	74	96	92	96	94	88	75	69	11
Lee	431	400	93	80	96	91	94	96	92	85	77	7
Linn	2756	2,681	97	71	84	78	82	83	78	74	66	4
Louisa	117	131	112	76	89	86	87	88	86	76	72	4
Lucas	81	73	90	75	93	86	88	93	86	78	71	4
Lyon	164	92	56	68	90	88	90	87	85	72	61	5
Madison	181	167	92	79	90	88	84	89	83	81	71	9
Mahaska	252	268	106	75	91	87	90	88	87	76	66	4
Marion	370	401	108	80	93	85	91	91	89	81	75	5
Marshall	584	607	104	81	96	92	94	95	91	80	75	7

County	County Population Born in 2013 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³	Late Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ⁴
Mills	165	147	89	73	91	84	90	84	84	80	64	11
Mitchell	114	94	82	74	89	87	86	89	86	70	68	7
Monona	96	86	90	74	93	88	92	92	87	85	72	7
Monroe	72	76	106	70	89	80	88	87	83	74	61	9
Montgomery	125	126	101	64	85	84	84	86	83	71	61	6
Muscatine	563	551	98	76	91	85	87	90	85	80	72	7
O'Brien	157	179	114	72	93	88	91	90	88	72	68	8
Osceola	76	67	88	76	88	87	88	85	85	78	73	4
Page	174	196	113	62	87	80	84	83	80	69	57	10
Palo Alto	95	108	114	76	92	90	91	93	88	82	76	5
Plymouth	296	276	93	78	92	88	84	91	89	83	70	6
Pocahontas	83	69	83	83	97	90	97	94	91	88	81	1
Polk	6621	6,971	105	76	90	87	85	90	86	78	70	6
Pottawattamie	1174	1,129	96	64	88	79	88	83	79	74	58	6
Poweshiek	194	198	102	76	92	92	91	92	91	82	72	10
Ringgold	53	53	100	74	94	91	89	94	89	81	74	11
Sac	117	109	93	75	92	89	91	89	85	82	72	6
Scott	2241	2,264	101	73	92	87	88	89	85	78	67	7
Shelby	137	122	89	78	90	86	84	92	84	84	76	0
Sioux	503	532	106	76	93	91	92	94	89	80	71	8
Story	901	1,228	136	80	90	86	89	88	85	81	75	4
Tama	206	228	111	75	93	86	91	89	85	79	69	7
Taylor	75	82	109	70	84	85	83	87	89	76	63	11
Union	152	148	97	73	94	91	91	95	84	80	70	10
Van Buren	101	87	86	69	92	91	90	85	83	67	57	14
Wapello	410	420	102	78	94	91	88	90	92	76	70	8
Warren	558	514	92	82	94	91	89	93	90	86	76	7
Washington	274	223	81	51	75	78	74	72	76	57	44	5
Wayne	93	82	88	71	83	87	84	82	84	73	68	4
Webster	434	493	114	80	94	91	92	94	90	87	77	6
Winnebago	101	110	109	74	85	81	86	84	80	73	67	5
Winneshiek	172	188	109	77	92	86	94	88	81	79	68	5
Woodbury	1516	755	50	63	85	77	82	85	78	67	60	6
Worth	76	81	107	74	86	84	86	86	85	80	70	6
Wright	138	154	112	79	93	91	93	90	87	84	70	6
Total	38743	36255	94	74	89	85	86	88	85	77	69	6

Figure 5: 2014 County Immunization Assessment Map
2 Year-Old Coverage of Selected Vaccination Series⁵



⁵ Shows coverage for 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV vaccine series by 24 months of age.

Table 7: Iowa Department of Public Health, Immunization Program
2014 County Adolescent Immunization Assessment
13-15 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series

County	County Population 2013 Estimate ⁶	Total Records Analyzed from IRIS ⁷	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td Coverage Percent	1 Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁸	13- to 15-Yr-Old Female Records	3 HPV Female Coverage Percent	13- to 15-Yr-Old Male Records	3 HPV Male Coverage Percent
Adair	290	244	84	98	71	96	1	82	81	63	132	42	108	30
Adams	135	129	96	84	33	84	2	68	50	23	61	25	66	6
Allamakee	514	623	121	88	41	85		57	56	30	308	18	284	8
Appanoose	474	455	96	73	37	73	1	71	37	21	216	18	204	5
Audubon	213	186	87	98	59	96	2	89	73	52	96	35	90	13
Benton	1110	1041	94	89	70	89	1	78	71	57	489	37	530	19
Black Hawk	4434	5271	119	95	75	92	1	80	75	63	2581	39	2596	23
Boone	1047	985	94	92	73	90	1	79	68	55	487	32	481	22
Bremer	925	950	103	90	75	88	1	84	70	56	443	41	489	23
Buchanan	986	1049	106	92	68	92	3	82	74	57	504	39	529	26
Buena Vista	809	1068	132	88	29	84	2	64	55	23	537	14	514	9
Butler	585	608	104	90	62	88	1	82	70	48	299	38	305	23
Calhoun	351	376	107	90	52	88	0	81	45	27	196	23	174	6
Carroll	836	837	100	87	44	87	1	83	49	30	421	17	406	7
Cass	534	623	117	98	80	95	1	84	85	74	293	45	326	39
Cedar	778	649	83	86	55	86	1	79	59	37	321	32	297	17
Cerro Gordo	1562	1695	109	94	75	91	1	84	74	62	806	33	876	21
Cherokee	425	445	105	93	59	93	0	75	73	47	237	31	201	18
Chickasaw	514	495	96	90	67	90	1	86	64	49	250	28	238	21
Clarke	389	414	106	91	64	86	0	73	60	47	208	31	205	15
Clay	627	657	105	92	53	87	0	72	49	34	339	22	312	14
Clayton	676	515	76	77	32	72	0	77	45	23	244	18	249	10
Clinton	1958	1908	97	89	44	87	0	79	53	35	934	19	947	9
Crawford	723	742	103	92	54	91	2	78	68	42	328	29	398	20
Dallas	3516	1887	54	88	69	84	1	77	63	49	885	26	931	13
Davis	419	312	74	90	31	86	1	61	40	22	176	11	133	2
Decatur	304	244	80	89	30	86	2	67	30	18	109	7	130	8

⁶ Source from <http://wonder.cdc.gov/bridged-race-population.html>.

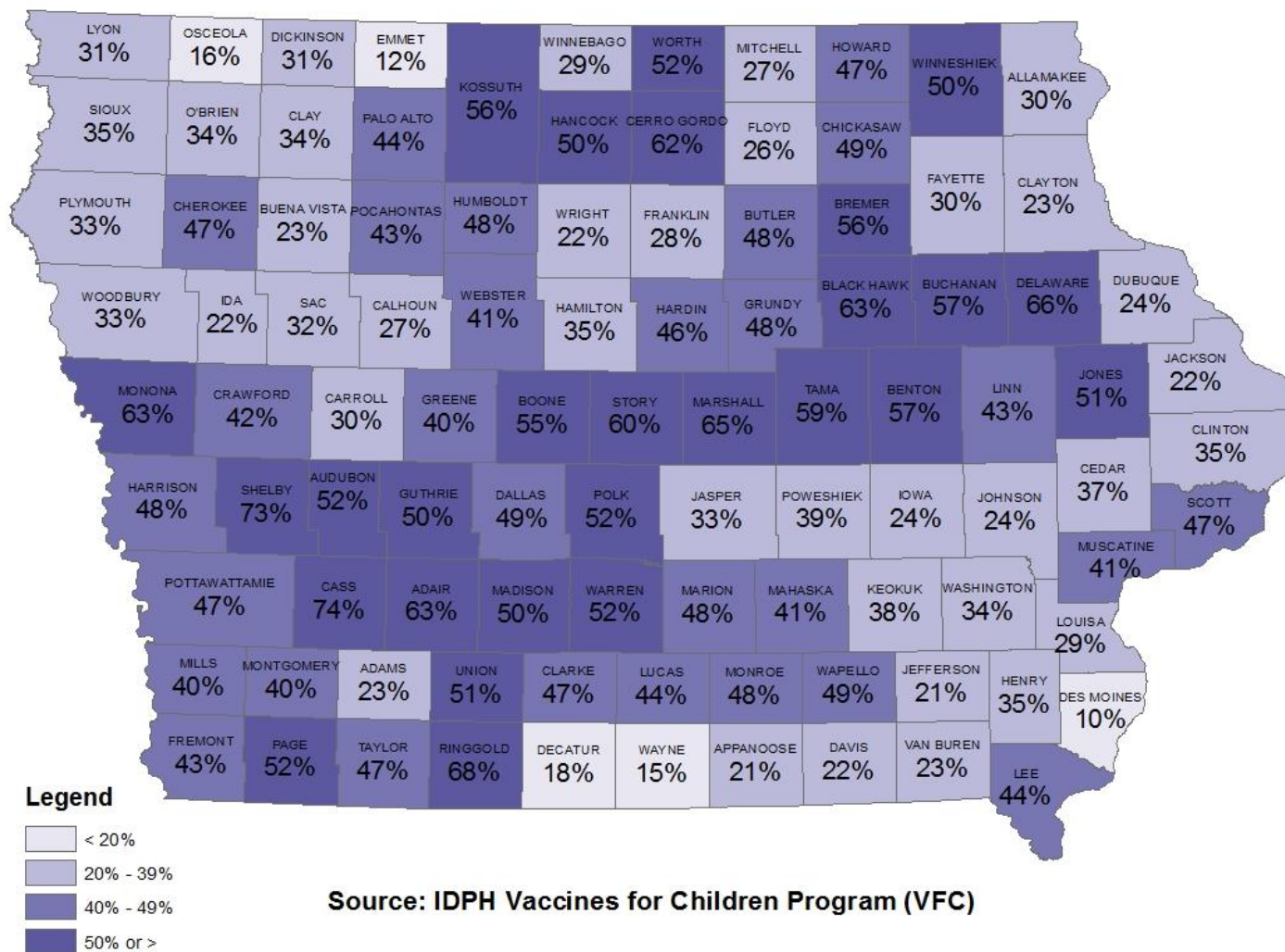
⁷ Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

⁸ "Up-to-Date" refers to adolescents 13- to 15-year-olds who have completed the 3 Hep B, 1 Meng, 2 MMR, 1 Td or Tdap, 2 Varicella series.

County	County Population 2013 Estimate ⁶	Total Records Analyzed from IRIS ⁷	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td Coverage Percent	1 Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁸	13- to 15-Yr-Old Female Records	3 HPV Female Coverage Percent	13- to 15-Yr-Old Male Records	3 HPV Male Coverage Percent
Delaware	757	609	80	91	75	91	1	87	78	66	283	40	314	30
Des Moines	1530	1615	106	91	13%	84	1	63	49	10	778	12	809	4
Dickinson	603	646	107	94	41	93	0	72	44	31	314	22	327	14
Dubuque	3785	1659	44	74	30	62	1	46	41	24	788	17	813	11
Emmet	363	370	102	74	34	58	2	67	24	12	167	26	199	18
Fayette	736	782	106	92	39	92	1	79	61	30	397	27	375	15
Floyd	648	598	92	85	38	78	2	73	43	26	296	17	286	9
Franklin	413	388	94	90	43	89	1	77	57	28	200	27	184	13
Fremont	273	257	94	80	60	81	1	68	65	43	122	27	126	13
Greene	417	412	99	90	56	87	2	73	57	40	185	24	221	21
Grundy	518	445	86	94	61	92	0	83	65	48	212	28	229	16
Guthrie	449	479	107	92	59	92	2	81	72	50	216	24	256	14
Hamilton	661	669	101	95	45	94	1	77	56	35	323	25	338	11
Hancock	455	455	100	94	64	94	1	80	69	50	219	28	225	14
Hardin	693	741	107	89	61	87	1	80	67	46	361	29	365	14
Harrison	606	598	99	86	71	84	0	75	62	48	271	35	289	24
Henry	813	842	104	93	44	89	1	70	62	35	411	19	425	11
Howard	396	438	111	84	63	83	1	82	59	47	214	37	219	19
Humboldt	364	446	123	90	58	89	1	81	65	48	225	25	206	14
Ida	255	233	91	89	29	86	2	61	50	22	122	10	108	9
Iowa	634	547	86	85	48	82	0	71	45	24	249	28	271	8
Jackson	819	485	59	79	35	74	0	77	47	22	201	21	232	12
Jasper	1455	1134	78	74	52	68	1	69	49	33	544	20	552	9
Jefferson	528	392	74	80	35	75	1	62	38	21	180	21	197	13
Johnson	4385	3287	75	69	43	66	1	49	44	24	1575	19	1604	14
Jones	774	689	89	84	71	84	1	80	64	51	344	24	332	6
Keokuk	414	409	99	81	60	82	0	76	57	38	198	24	203	13
Kossuth	593	573	97	96	66	94	1	75	69	56	277	20	286	7
Lee	1272	1171	92	88	54	86	0	77	66	44	566	26	567	18
Linn	9075	8057	89	82	60	81	1	70	57	43	3743	25	3851	14
Louisa	502	488	97	86	39	83	2	65	46	29	227	23	246	16
Lucas	401	344	86	84	66	83	0	82	60	44	156	28	181	29
Lyon	542	464	86	80	46	78	1	71	52	31	211	17	234	9
Madison	744	790	106	93	66	92	2	80	69	50	369	25	407	12
Mahaska	930	736	79	79	64	75	0	81	52	41	330	24	358	14
Marion	1391	1474	106	89	65	86	1	78	61	48	698	22	684	8
Marshall	1697	2068	122	96	74	93	1	79	80	65	964	40	1019	30

County	County Population 2013 Estimate ⁶	Total Records Analyzed from IRIS ⁷	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td Coverage Percent	1 Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁸	13- to 15-Yr-Old Female Records	3 HPV Female Coverage Percent	13- to 15-Yr-Old Male Records	3 HPV Male Coverage Percent
Mills	650	565	87	69	63	70	1	74	53	40	287	31	268	14
Mitchell	480	365	76	79	66	83	1	83	38	27	187	29	171	8
Monona	354	331	94	97	68	96	2	86	87	63	160	45	169	32
Monroe	313	281	90	89	62	85	1	86	71	48	127	34	145	9
Montgomery	437	445	102	82	68	80	0	81	57	40	210	29	230	14
Muscatine	1855	1675	90	80	57	78	1	77	58	41	802	31	783	15
O'Brien	568	617	109	93	57	92	0	78	54	34	286	32	329	29
Osceola	233	257	110	90	20	81	0	59	40	16	129	13	124	5
Page	518	621	120	90	73	89	1	70	71	52	302	29	303	15
Palo Alto	318	365	115	95	51	93	1	81	65	44	163	24	199	19
Plymouth	1063	954	90	90	43	88	0	69	59	33	455	21	490	15
Pocahontas	270	277	103	91	57	88	1	83	60	43	134	27	143	20
Polk	18469	19916	108	87	71	83	2	75	66	52	9457	27	9904	13
Pottawattamie	3669	3306	90	79	65	77	1	72	63	47	1616	35	1608	20
Poweshiek	697	667	96	91	54	90	1	86	55	39	298	25	347	14
Ringgold	235	206	88	97	78	97	1	88	80	68	90	44	114	20
Sac	390	376	96	88	44	86	1	77	53	32	185	25	188	15
Scott	6809	7420	109	87	56	83	1	77	63	47	3499	27	3773	14
Shelby	502	523	104	97	83	96	0	86	82	73	234	44	284	39
Sioux	1477	1584	107	90	43	90	3	78	57	35	720	21	843	14
Story	2646	2819	107	90	69	87	0	81	72	60	1326	30	1363	19
Tama	770	840	109	92	72	92	1	80	73	59	405	36	412	21
Taylor	260	275	106	89	57	86	1	81	67	47	126	30	145	12
Union	483	565	117	95	61	92	0	71	70	51	277	34	278	14
Van Buren	297	286	96	87	36	85	1	64	52	23	144	19	141	10
Wapello	1298	1609	124	85	64	82	1	72	64	49	761	24	816	14
Warren	2264	2058	91	88	70	86	0	82	67	52	954	26	1091	11
Washington	979	819	84	85	53	83	2	57	59	34	372	22	432	19
Wayne	260	203	78	76	35	73	0	84	35	15	109	27	89	11
Webster	1346	1582	118	91	56	90	1	72	59	41	755	24	814	13
Winnebago	407	411	101	80	38	75	0	75	46	29	189	13	199	7
Winneshek	695	660	95	93	60	90	0	87	71	50	344	33	312	26
Woodbury	4343	3506	81	81	43	72	2	56	48	33	1672	23	1772	18
Worth	317	264	83	94	65	88	0	87	70	52	136	27	126	21
Wright	539	529	98	91	35	92	2	83	56	22	270	26	251	11
Total	122236	117375	96	87	59	84	1	74	62	45	56017	27	58213	15

Figure 6: 2014 County Immunization Assessment Map
13-15 Year-Old Coverage of Selected Vaccination Series ⁹



⁹Shows coverage for 3 Hep B, 1 Meningitis, 2 MMR, 1 Td or Tdap and 2 Varicella vaccine series.

Appendix A: Immunization Program Directory

Immunization Program Directory

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